

Engagement in Practice: Community Engagement Challenges for Food Supply-chain Engineering

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Community Engagement Challenges Faced by Food Assistance Providers: A Case Study

Introduction

Food insecurity has been identified as an important humanitarian issue in the USA [1]. The United States Department of Agriculture (USDA) defines food insecurity as “a household-level economic and social condition of limited or uncertain access to adequate food” (USDA, 2020). In 2012, a total of 49 million persons in the United States households were classified as being food insecure [2], with 40 million people reported as food insecure in the year 2017 [17]. Although the number has been reduced in the following years, 14.3 million American households were food insecure in 2018, with limited or uncertain access to enough and safe food [3].

To alleviate the food insecurity problem, food emergency assistance is provided by several hunger-relief programs, such as Supplemental Nutrition Assistance (SNAP), a federally-funded program, and Feeding America’s network of Food Banks [20]. Emergency food assistance has caused many disruptions in the food supply chain management and has become a topic of interest to investigate by students and scholars majoring in supply chain or related disciplines. For example, regarding the inconsistency in donations, several researchers have investigated ways to estimate the unpredicted supply received from national and local sources of food donations such as the USDA to food banks [3], with a few researchers who tried to use prediction methods to predict the demand of a food-insecure population [1].

Food emergency assistance programs, such as food banks, need a more efficient supply chain management coupled with better coordinating food needs through their food assistance providing agencies [4]. These agencies are usually churches and parachurch organizations with local volunteers who have direct contact with their local community most in need of food and health services, they are usually more aware of their community's need and thus would be considered as an intermediary agency between food banks and the people who require assistance [5]. To do this, food banks have been motivated extensively to partner with each other and their food assistance providing agencies [6]. Moreover, non-profit organizations are being partnered with course-based community service (service-learning) students, in a desire to give information regarding the food insecure communities and to receive assistance from students[7].

This network of partnerships is formed to provide better service and to satisfy the needs of a food-insecure community. Since there are so many challenges related to engaging food-insecure communities, we found it helpful to address the food insecure community's challenges through investigating the food assistance providing agencies' challenges in engaging the food insecure community. This paper aims to investigate the questions of, What challenges food assistance providing agencies are facing when they provide service to those of us that are food-insecure? How these challenges would help in designing research and identifying solutions that would benefit community engagement studies? To address these questions, we used our discussion data with food assistance providing agencies about existing challenges in engaging the food-insecure community, as well as incorporating available literature reviews.

The remainder of the paper is organized as follows: First, we provide a brief overview of the literature reviews on food banks' distribution operations and the existing partnerships. Next, we describe our method and results of the conducted discussions with food assistance providing agencies' challenges in engaging food insecure communities. Following this, we will have our discussion section. In the end, we will provide insight on how these challenges could help future studies to identify solutions for community engagement problems.

Literature review

Food insecure people are receiving food assistance from hunger-relief programs including food banks and their food assistance providing agencies [3]. Food banks and these agencies such as food pantries and client-based organizations are utilizing many usual business approaches including logistical and operationally defined for the food industry, e.g., in the study conducted by Orgut et al. [8], equitable (each food insecure person served equally) and effective (minimum food waste) model of food distribution from food banks to food agency, considering capacity uncertainty, have been designed. With inconsistency in donations, forecasting methods have been used to predict different amounts of in-kind food types received from supermarkets to food banks [9]. Besides, [10] adopted time series forecasting techniques to predict the uncertain supply received by a domestic hunger-relief organization.

In a recent conference study by Sucharitha et al. [1], probabilistic models such as the Gaussian Mixture Model (GMM) clustering technique, has been used to characterize the regions of Ohio county with low access to food assistance using demographic data (e.g., income) from USDA with families' location and census data (e.g., number of family members) from a food bank. Moreover, in the study by Gundersen et al. [18], food insecurity has been estimated using several factors such as unemployment, poverty rate, median income, percentage of black/Hispanic and rented/owned houses at the county level, while other indicators of food insecurity such as health data, housing cost pressures and economic measures have been suggested for further studying. As discussed in the work by Wight et al. [20], poverty is not the only cause of food insecurity in households, as there are other possible issues such as affordable housing, social isolation, location, and severe health issues that would cause someone to become food insecure. Some families reported themselves as food insecure while their income level was above the official poverty line with reasons mentioned as the use of current income instead of permanent income or income during two years and, the high influence of housing cost, unemployment rate, tax burdens on food insecurity status [20]. These studies showing us the complexity of food insecurity and the existence of much more determinants in providing community engagement services.

Food insecurity determinants have been extensively researched through studies, for example using cross-sectional data there were found a correlation between being at high risk of homelessness, not receiving child support, being in a state with higher-than-average unemployment rates, facing high food prices, having cigarette smoker in-home and being a food-insecure individual [18]. Using panel datasets, negative income shocks, lack of assets, unemployment, a decline in general health, an increase in the number of children and domestic violence has been associated with experiencing a higher risk of food insecurity [18].

Increasing food insecurity demands followed by a limited capacity has been considered as one of the major challenges of the food banks [11], encouraging them to extensively operate in a partnership structure. Organizational capacity has been defined as an important characteristic of food assistance providing agencies in making partnership structures and responding to the food insecure communities' needs [14]. As such, [12] investigated the relationship between accountability, fulfilling expected responsibilities and roles, and different kinds of relationship between food banks and the food assistance providing agencies, namely supplier-customer, supporter-customer, and supporter-collaborator, with collaborative approaches have been identified as providing effective public value, especially in times of scarcity of financial resources [13]. Accountability in the food bank networks has been addressed as a crucial factor in assessing the relationship between the food bank and their food agencies, it defines how well partners are fulfilling their promises and roles in favor of the food insecure community [12].

Moreover, the topic of food insecurity has become of interest and been researched in the service-learning of students to engage them with their local communities in need of food [15]. Service-learning is a pedagogical method that emphasizes the importance of identifying and addressing the community's needs. There exists a service-learning relationship between students and the non-profit community partners [7], where students are engaged with vulnerable populations [16]. As mentioned by Williams et al. [15], engaging with a food-insecure community provides a valuable experience for students, while it is hard to make connections with those food-insecure communities [15]. A service-learning relationship is being assessed by the motivations, expectations, and satisfaction of the community partners (e.g., non-profit organizations) in their service-learning experiences with students and teachers [7]. One of the challenges regarding a partnership with service-learning students has been illustrated, as a costly and time-consuming task for non-profit organizations, in which they must decide whether they are willing to dedicate their resources, time, and knowledge to the students [7]. The personal motivations of staff working in a non-profit organization are often understood as an individual who donates time and money to a charity [18]. These motivations will let them meet with students to provide them information about their organizations [7]. The existence of this service-learning relationship has motivated us to investigate the challenges that the food-insecure community is facing through the perspective of staff working in the food assistance providing agencies.

Method:

This study used data from three food assistance providing agencies, including the homeless and housing agency, to explore their existing challenges in engaging their food-insecure sector. To conduct the study, we had three separate online discussions via the Zoom application with the program director of each agency. During our discussion, agency directors expressed their challenges, their relationship with the food insecure community, and their commitment and promises in favor of these communities in general and especially during the COVID-19 pandemic. These discussions were conducted during December 2020. Although collecting data from food insecure individuals directly could help us to identify their challenges better, the difficulty of having access to them and time restrictions of our study had required us to collect data from another source of information, food assistance providing agencies, who are in direct contact with the food insecure communities and therefore could be considered as a good source of information to identify existing challenges in community engagement. Moreover, we did not

have access to food assistance providing agency's service data from the food bank and did not use any demographic data from USDA.

The next section would be a summary of initial relevant data from food assistance providing agencies' challenges in servicing and engaging the food insecure community, following by our discussion section. Through study data and literature reviews we would like to provide insight on how to overcome these challenges and to develop solutions/models that would better respond to community engagement and needs.

Results:

Food assistance providing agencies defined food insecurity as a root issue, causing a lack of other needs such as not being able to pay for rent, attend a school, or having the technology to attend online classes resulting in a feeling of embarrassment in communities. Agencies expressed that food delivery, language barriers, and a sense of oppression where individuals feel embarrassed or that they should not go out during the COVID-19 pandemic were some of the challenges they faced in helping the food insecure community members. It was also stated that buying food from food banks was a challenge because of both food portion sizes, which came in packagings like one-pound meat and small cans, and an inconvenient delivery time which took three to five days for food assistant provider agencies to receive food from food banks. Agencies' response to this challenge was to use money received from donations, mostly provided from community-type donations, to place orders from other vendors. Not being autonomous in ordering food from food banks was also brought up as another reason to buy food from other vendors. In a case of a shelter, it was mentioned that there was a set menu but mostly they were making a food off of their available resources and people who came to shelters just wanted to eat and mostly did not express their food preferences. Grab and go option during COVID-19 pandemic, mentioned as a challenge causing a decrease in an engagement with food insecure community.

The transient nature of food insecure communities, especially those coming to homeless shelters indicated to be a challenge for food assistance providing agencies to collect data and establish a relationship with those food-insecure members. "These people are coming to shelter for one night or more until they will have their houses, they may not be interested to share their information for just eating a food" (Shelter Director). Regarding this challenge, the agency claimed that they are trying to keep a 6 monthly follow up with their food-insecure community, but they were not able to make a long relationship due to their time restrictions and responsibilities and specially mentioned that "the people who experienced this part of their lives, they want to forget about it". The shelter director stated that they are tracking each homeless member until they will be able to have some income and be able to move out from shelter to housing. Affordable housing had been identified as a challenge for shelter agencies, as the prices were high and engaging landlords and getting them to understand the people, who would be living in these housing accommodations, was hard. Increasing capacity and having more landlords in the program were considered as an option to better serve the homeless population. Although unexpected, there was a drop in the number of people attending shelter during the COVID-19 pandemic, almost a third of what had been under normal circumstances. Possible reasons were: tax return and stimulus from the government, money through care spending during

the pandemic, as well as people's perception of shelter closure and the fear of going to a congregate shelter setting.

In general, food assistance agencies' experience with food banks was not ideal in the sense that food donations were random, they received what food banks send them, low quality, and most of the time foods were thrown away because there was no demand for it to fulfill. This is mentioned to affect family attendance, especially those who drive miles to come and get this help. Not having the ability to pick up foods of their preferences, would result in reverting them from engaging more in food agency programs.

In addition, agencies declared that have kept their promise of consistency in showing up on a routine basis like weekly/monthly, however, the promise of quality may do not necessarily be maintained. The shelter agency stated that they are pretty attentive to what the community says with having 3 meals a day, however during pandemic “Food lunchtime Pickup” was just available as the agency was trying to rescue people from being in enclosed spaces. Concerning food assistance agencies' relationship with the food insecure community, some said they have a very close relationship with these families and indicated that relationship as an awesome experience and eye-opening, while others wished they could get more involved with these communities even after they got help and leave the program. Communication methods with food-insecure members were considered to be with online applications such as Facebook and Instagram, with texting and phone calls recognized as the best ways for an immediate response. It was emphasized that making groups private on Facebook increases the sense of confidence in participants. Lastly, Agencies believe that food banks have the ability and capacity to accomplish to better serve people in need of food.

Discussion:

The language barrier was mentioned as one of the difficulties of food assistance providing agencies in engaging the food insecure community. To solve this problem, [17] recommended preparing appropriate linguistically and culturally acceptable information to the food insecure community and revising the applicability of existing language services. They believe that this information will provide a participatory based food program that will reduce the stigma associated with using hunger-relief programs. We also suggest having a leader within the food insecure population to be a voice of the community would improve the linguistic problems and will reduce the sense of oppression between the food insecure community.

Regarding agencies' awareness of different food habits from different people of different backgrounds, we believe that accomodating needs according to the food insecure individual's preferences, such as providing education programs, would be a way to increase their sense of reliability. This statement further is proved by the work of [17], in which two programs such as “The Basic Shelf Experience” and “Collective kitchen” (offered in the UK and Canada) resulted in educating food insecure individuals, reducing stigma, and providing social support for them.

Lack of information delivery about available resources has made food banks and their food assistance providing agencies less accessible to food insecure people [17], this issue provides us to understand one of the possible reasons causing the transient nature of food-insecure

communities. For example, in the case of shelter services during the COVID-19 pandemic, we saw a drastic drop in the number of people attending the shelter which could be related to lack of accessibility during the pandemic, and not “tax returns and monetary stimulus” as mentioned by a shelter’s manager in our case study.

Conclusion for future study:

Food insecurity happens unexpectedly like losing a job, natural disaster or it can occur slowly like poverty. Every people life’s circumstance is different and many factors determine where and how much help someone may need. Several determinants define food insecurity, therefore making the demand of food insecure populations highly uncertain. These determinants may be different for each case study at the state or county level with some of them not being available to incorporate as an input variable for building engineering models. Data availability is the foremost concern in designing food insecure community-based models, as it is hard to have access to a wide range of food insecurity determinants. In this case study, using themes that emerged in discussion data from food assistance providing agencies, we have specified five main food insecurity determinants such as income, homeless rate, homeownership, rent cost, and distance to food assistance providing agencies. These determinants would provide us with a knowledge of, what community-level data is required to be used as a proxy for developing models that help faculty and students in a service-learning environment to overcome challenges that are faced by food assistance providing agencies in engaging their food-insecure communities.

As a reminder to our literature review, Gundersen et al. [18] estimated food insecurity considering income, poverty, racial and ethnic determinants using a simple prediction model, with very few studies, such as a study by Sucharitha et al. [1], who estimated much less food insecurity determinants (income and distance) using more complex prediction techniques such as Clustering algorithms. Future studies need to develop this idea of considering a wider range of determinants (related to each case studies) using more advanced prediction algorithms such as machine learning techniques or using a neural network, to accurately predict where the food insecure community is located and how to design solutions to better engage these communities.

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